

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)  
(PCT Article 36 and Rule 70)

REC'D 21 JUN 2006  
WIPO PCT

Applicant's or agent's file reference 20402288KC	<b>FOR FURTHER ACTION</b>	
	See Form PCT/IPEA/416	
International application No. <b>PCT/SG2005/000037</b>	International filing date ( <i>day/month/year</i> ) 14 February 2005	Priority date ( <i>day/month/year</i> ) 15 February 2004
International Patent Classification (IPC) or national classification and IPC  Int. Cl.  <b>H04L 9/00</b> (2006.01) <b>G06T 9/00</b> (2006.01) <b>H04N 7/26</b> (2006.01)		
<p>Applicant MATRIXVIEW LIMITED et al</p>		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 2 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>																									
<p>4. This report contains indications relating to the following items:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><input checked="" type="checkbox"/></td> <td style="width: 15%;"><b>Box No. I</b></td> <td style="width: 70%;">Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. II</b></td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. III</b></td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. IV</b></td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><b>Box No. V</b></td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. VI</b></td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. VII</b></td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td><b>Box No. VIII</b></td> <td>Certain observations on the international application</td> </tr> </table>		<input checked="" type="checkbox"/>	<b>Box No. I</b>	Basis of the report	<input type="checkbox"/>	<b>Box No. II</b>	Priority	<input type="checkbox"/>	<b>Box No. III</b>	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	<b>Box No. IV</b>	Lack of unity of invention	<input checked="" type="checkbox"/>	<b>Box No. V</b>	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	<b>Box No. VI</b>	Certain documents cited	<input type="checkbox"/>	<b>Box No. VII</b>	Certain defects in the international application	<input type="checkbox"/>	<b>Box No. VIII</b>	Certain observations on the international application
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Date of submission of the demand 23 November 2005	Date of completion of this report 02 June 2006
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## Box No. I Basis of the report

1. With regard to the language, this report is based on:

 The international application in the language in which it was filed A translation of the international application into translation furnished for the purposes of: , which is the language of a international search (under Rules 12.3(a) and 23.1 (b)) publication of the international application (under Rule 12.4(a)) international preliminary examination (Rules 55.2(a) and/or 55.3(a))2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*): the international application as originally filed/furnished the description:

pages 1-23 as originally filed/furnished

pages\* received by this Authority on with the letter of

pages\* received by this Authority on with the letter of

 the claims:

pages as originally filed/furnished

pages\* as amended (together with any statement) under Article 19

pages\* 24,25 received by this Authority on 30 May 2006 with the letter of 30 May 2006

pages\* received by this Authority on with the letter of

 the drawings:

pages 1/23 to 23/23 as originally filed/furnished

pages\* received by this Authority on with the letter of

pages\* received by this Authority on with the letter of

 a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.3.  The amendments have resulted in the cancellation of: the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (*specify*): any table(s) related to the sequence listing (*specify*):4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)). the description, pages the claims, Nos. the drawings, sheets/figs the sequence listing (*specify*): any table(s) related to the sequence listing (*specify*):

\* If item 4 applies, some or all of those sheets may be marked "superseded."

**Box No. V** **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims <b>1-19</b>	YES
	Claims	NO
Inventive step (IS)	Claims <b>1-19</b>	YES
	Claims	NO
Industrial applicability (IA)	Claims <b>1-19</b>	YES
	Claims	NO

**2. Citations and explanations (Rule 70.7)**

D1 Patent Abstracts of Japan JP 11-136233 A (MATSUSHITA DENSO SYSTEM KK) 21 May 1999  
 D2 Patent Abstracts of Japan JP 2001-188469 A (HITACHI INFORMATION SYSTEMS LTD) 10 July 2001  
 D3 WO 2003/084205 A2 (MATRIXVIEW PTE. LTD.) 9 October 2003  
 D4 Patent Abstracts of Japan JP 2003-153228 A (SONY CORP et al.) 23 May 2003  
 D5 US 6351568 B1 (ANDREW) 26 February 2002 **NEW CITATION**  
 D6 WO 1998/037700 A1 (BRITISH TECHNOLOGY GROUP LIM. et al) 27 August 1998 **NEW CITATION**  
 D7 US 5058144 A (FIALA et al.) 15 October 1991 **NEW CITATION**  
 D8 YASUDO et al. "Advances in FAX" Proceedings of the IEEE, Vol. 73, No. 4, April 1985 **NEW CITATION**

**NOVELTY (N)**

D1 discloses encrypting communication data including scrambling the message content using an exclusive OR. The compression coding in D1 is a QMcoder (arithmetic coder). D1 does not disclose the "matrix of values" or "bit-plane index" of the amended claims. D2 also discloses security measures for image information where an exclusive OR transformation is employed. D2 does not disclose the "bit-plane index" feature of the amended claims.

D3 discloses the matrix of values stored and bit plane index of the amended claims. D3 does not disclose a method of encrypting.

D4 discloses image encoding, however does not disclose the "matrix of values" or "bit-plane index" of the amended claims. None of the other (NEW CITATIONS) discloses all of these features taken alone.

**INVENTIVE STEP (IS)**

D3 discloses using the RCC algorithm (employing the matrix of values" and "bit-plane index) for compression. It is not considered obvious from D3 that the technique could also be used for encryption (or scrambling). The particular defined order in which various **encryption** and/or **compression** steps are done (eg. partial scrambling or partial compression) has surprising advantages over the state-of-the-art in both fields, at the priority date. It was customary to compress then encrypt before the priority date (See Johnson et al. IEEE "On compressing encrypted data" October 2004 which is published too late to be cited).

D5 (which was from the ISR of D3) discloses bitplane image coding but no encryption. D6 is similar to D5 and also does not disclose the "matrix of values" or "bit-plane index" of the amended claims.

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V (Inventive Step)

D7 discloses an encoding and compression method for textual data. In D5 it is taught that internal redundancy is often removed before encryption (see column 1 lines 30-36). D7 also discloses (see Figure 12) a comparison of one character with a previous character to see if there is a match. D7 does not disclose the "matrix of values" or "bit-plane index" of the amended claims.

D8 discloses some types of bit plane compression techniques that could be considered well known to those familiar with image compression. In particular is disclosed storing values that are the result of a comparison between a current pel and that of an adjacent pel into a bit-plane. Furthermore Citation D8 discusses various forms of encoding, particularly relating to "bit planes". See page 708 of D8 in the section entitled "Bit-Plane Coding" and associated references [8,9,10,11]. In the section entitled "Bit-plane Coding" appears a reference [8]. The reference [8] SCHWARTZ et al. "Bit-plane encoding: A technique for source encoding" was also cited in the EP 1491055 examination report (dated 27 January 2006).

It is clear that D8 ties together a significant amount of common knowledge and standard practice in the field of facsimile communications. In particular the differential bit plane coding, in which "In this coding scheme some redundancy that exists in an original picture is first reduced by taking the difference between the grey level of a current pel and that of the adjacent pel". This document further establishes that these coding schemes formed the basis for public FAX systems and the associated CCITT international standards. Whilst D8 is very close prior art in relation to the bit plane coding of image data, it does not explicitly disclose the method of encryption, as defined in the amended claims.

The combination of features in the amended claims would not be obvious from the cited documents, or any obvious combination of these documents.